

VERDER - BEST FIT HYGIENIC PUMPING SOLUTIONS

VERDER HYGIENIC PUMP PROGRAM

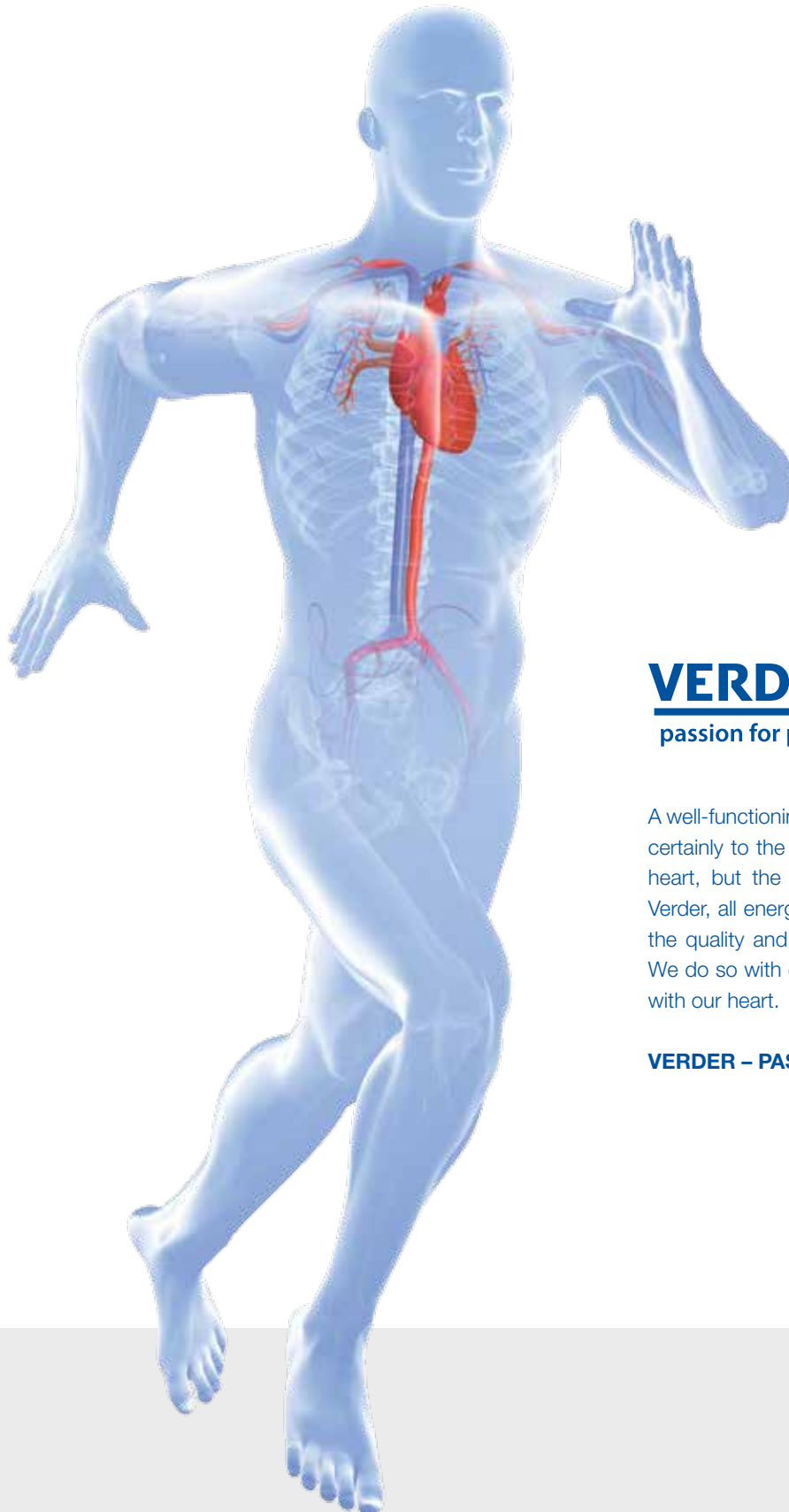
Centrifugal pumps | Rotary lobe pumps | Twin-Screw pumps | Circumferential piston pumps | Air operated double diaphragm pumps | Peristaltic pumps



Your benefits

- Best cleanability
- Certified quality
- Best fit pumping solution

VERDER
passion for pumps



VERDER

passion for pumps

A well-functioning pump helps you succeed. That applies certainly to the most important pump in life, the human heart, but the same goes for pumps in business. At Verder, all energy and attention is focused on improving the quality and performance of our pump and service. We do so with energy, dedication and most importantly, with our heart.

VERDER – PASSION FOR PUMPS



THE VERDER GROUP

- 1 Company
- 28 Countries
- 60 Years of expertise
- Global network
- Local distributors
- In-house service & maintenance
- A solution for every application

The Verder group is a family owned business established 60 years ago in the Netherlands; the group consists of a worldwide network of production and distribution companies. Group companies are involved in the development and distribution of industrial pumps, pumping systems, high-tech equipment for quality control, research and development into solid material (solids sample preparation and analytical technologies). The Verder Group employs over 1600 people and has an annual turnover close to 400 million Euros.

With its' manufacturing companies Packo (Centrifugal), Verderair (Double diaphragm) and Verderflex (Peristaltic) and the recent acquisition JEC (Rotary lobe and Twin-Screw techniques) Verder is ready to enter the market with a complete program that offers solutions all over the hygienic market segment.

Best expertise in broad hygienic solutions

The in-depth knowledge, available with the hygienic specialists of our joint manufacturing companies, gives us the possibility to offer you really the best solution for your hygienic process. With our well-known brands Packo, JEC, Verderflex and Verderair we have a wide range of hygienic pumping programs and alternatives if your process line or your wishes for long lasting, cost effective, but most of all hygienic safety require the best possible solution.

APPLICATIONS IN HYGIENIC INDUSTRIES

Verder offers a wide program of pumps for hygienic applications in the food, pharma and dairy industry. Examples of the processes where our pumps operate successfully are listed below. Of course, there are many other areas in the hygienic market where our pumps can be applied.

Beverage

- Clean water (process water)
- Pressing (local)
- Evaporation (local)
- Transport
- Distillery
- Mixing
- Cold zone (pasteurisation, filtration, filling)
- Hot zone (brewery)
- Pulp transfer
- Flavour addition
- CIP
- Waste water



Food processing

- Clean water (process water)
- Preparation zone (mixing, storage, reception, filling, centrifuge, storage)
- Dough transport
- Transport
- Evaporation
- Mixing tank
- Flavour additions
- Fruit mixture transfer
- Waste product
- CIP
- Waste water



Dairy

- Clean water (process water)
- Transport (trucks)
- Evaporation
- Prod. zone (Reception, pasteurisation and more)
- Cheese production (cutter/drainage/curd)
- Whey recovery
- Brine installation
- Flavor dosing
- Filtration
- CIP
- Waste water



Biotech

- Pre Clinical Formulation
- Upstream Media Preparation
- Upstream Fermentation
- Upstream Harvesting
- Downstream Bioprocessing
- Downstream Purification



Pharma

- Clean water (PW, WFI)
- Process (clean room)
- Small Scale Production
- Tablet Coating
- Active Material Transfer
- Filtration
- Sanitary centrifuge & filling
- CIP
- Waste water (+ black piping)



HYGIENIC DESIGN PRINCIPLES AND CERTIFICATIONS



European regulation about food materials and articles intended to come into contact with food. Guidelines about the traceability and the use of materials that do not deteriorate the color, flavor, smell or taste of the properties of the food.



Additional regulation on top of EC1935/2004 is the EC10/2011 for plastic materials and articles intended to come into contact with foodstuffs. It concerns a.o. ion exchange resins, rubber and silicones.

ASME BPE

Standard for the design and construction of equipment used in the manufacturing of biopharmaceuticals and pharmaceutical industry.



The European Hygienic Engineering and Design Group has defined European standards for process equipment in hygienic environments. It concerns cleanability, engineering and design of process equipment



This American standard specifies criteria for the design and fabrication of equipment that comes into contact with food. The guiding purpose of 3-A sanitary standards is to protect public health by using sanitary certified equipment.



ATEX is a European Directive 2014/34/EC for explosion-proof electrical and mechanical equipment, components and protective systems. It concerns the manufacture of products which are used in potentially explosive atmospheres.



The American Food and Drug Association is an organization that gives references for food and pharmaceutical products to stipulate and classify substances that are compliant.



The United States Pharmacopeia (USP) has defined the minute standards to safeguard the quality of medicines and other health care technologies for pharmaceutical and bio-technology industries. There are guidelines for quality, purity, strength and consistency.



Minimum Efficiency Index, guideline for efficiency of pumps. This index gives a percentage from the sold pumps in the market on a certain moment with a low hydraulic efficiency on BEP. From 01/2015 MEI \geq 0.4. 95% of our centrifugal pumps complies to MEI.

CREDENTIALS

- ✓ Own Hygienic design
- ✓ Highest materials quality
- ✓ Excellent durability
- ✓ Maximum safety
- ✓ Continuous development
- ✓ Maximized productivity
- ✓ Continuously improving technologies
- ✓ Lowest Total Cost of Ownership
- ✓ Multiple hygienic techniques for the best possible process solution

What are your benefits using **hygienic pumps** from Verder?

Best cleanability

- Electropolishing or other surface treatment
- Pumps available up to $Ra < 0.4 \mu m$
- 3A certification
- EHEDG certification
- 1935/2004 EC
- EC10/2011
- SIP/CIP cleanable



THE HYGIENIC PROGRAM

Offering a wide range of hygienic solutions



Packo hygienic centrifugal pumps



Packo CIP Return pumps



JEC rotary lobe and circumferential piston pumps



JEC twin-screw pumps



Verderflex peristaltic pumps






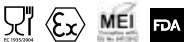
Verderair HI-CLEAN double diaphragm pumps



PACKO HYGIENIC FOOD CENTRIFUGAL PUMPS

The Packo hygienic food pumps meet the high demands of EHEDG and 3A certification. For this reason, these pumps are used in almost all demanding food applications such as dairy, breweries, distilleries and other beverage production. The perfect-to-clean pumps are ideal for use in food production.



Packo Food	FP60	FP1	FP2/FP3	MFP2/MFP3
Concept	Easy concept	Best value for money	Cleanest Hyg.	High flow
Max. flow [m ³ /h]	20	55	320	1200
Max. differential pressure [bar]	2.5	3.5	12	7
Internal surface roughness [μm]	0.8/3.2	0.8/3.2	0.8/3.2	6.3
Certification				

- ✓ SS316L or better
- ✓ Electropolished as a standard
- ✓ Low NPSHr
- ✓ Various Connections
- ✓ Easy maintenance, standard wear parts













<i>FMS</i>	<i>CRP</i>	<i>FP2+</i>	<i>CRP+</i>
<i>High pressure multi-stage</i>	<i>CIP return pump</i>	<i>Upgraded food</i>	<i>Upgraded food air handling</i>
50	120	100	80
16	7	2.5	7
0.8/3.2	0.8/3.2	0.8	0.8

PACKO HYGIENIC PHARMA CENTRIFUGAL PUMPS

Before Packo pumps are electropolished, all wetted parts of the Packo pharmaceutical pumps are polished by hand to a surface quality $Ra < 0.4 \mu m$. Also available is a CIP return pump for applications in the pharmaceutical industry. The pumps are suitable for SIP and available with various configurations. All pump materials are according to FDA and USP (Viton O rings excluded). Packo pharmaceutical pumps are certified compliant with EHEDG and 3A, and designed in line with ASME BPE guidelines.



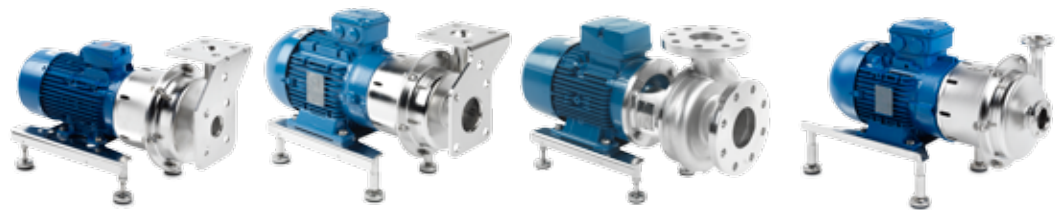
	PHP2	PRP	
Concept	Highest pharma	Highest pharma air handling	
Max. flow [m ³ /h]	90	80	
Max. differential pressure [bar]	12	7	
Internal surface roughness [μm]	0.4	0.4	
Certification	    	    	









- ✓ SS316L or better; impeller 1.4435
- ✓ Electropolished as a standard
- ✓ EHEDG / 3A / ASME BPE guideline
- ✓ Various Connections
- ✓ Easy maintenance, standard wear parts
- ✓ Surface roughness < 0.4 µm



PACKO BASIC HYGIENIC CENTRIFUGAL PUMPS

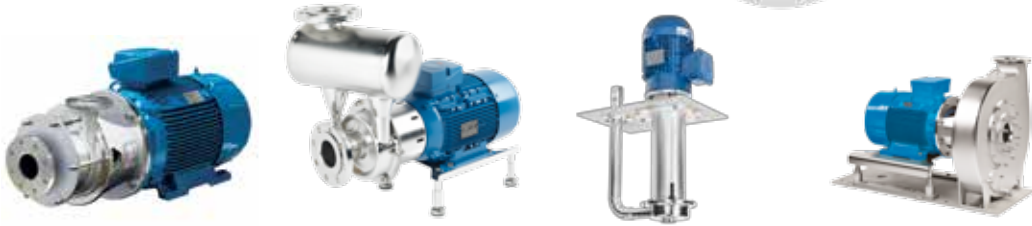
The Packo basic hygienic stainless steel pumps are highly efficient and have a low $NPSH_r$ value. These hygienic stainless steel pumps are robust and easy to clean. They are characterized by their modular design with interchangeable standard components. Also available as cantilever submersible pumps, vortex pumps and special pumps for water/air mixtures.












	NP60	ICP1	MCP2/MCP3	ICP+
Concept	Low budget	Best value for money	High flow	<ul style="list-style-type: none"> • Robust design • Hygienic connections
Max. flow [m ³ /h]	40	55	1700	320
Max. differential pressure [bar]	2.5	3.5	7	12
Internal surface roughness [μm]	3.2	3.2	6.3	3.2
Certification	 	 	 	 



- ✓ SS316L or better
- ✓ Electropolished as standard
- ✓ Low NPSHr
- ✓ Various Connections
- ✓ Easy maintenance, standard wear parts







<i>NMS</i>	<i>IRP+</i>	<i>IML, IMXL, IMO</i>	<i>VPCP</i>
<i>High pressure</i>	<ul style="list-style-type: none"> • Air handling pump for CIP return • Hygienic connections 	<i>Cantilever</i>	<i>Product transfer</i>
50	120	1000	1000
16	7	6	2
3.2	3.2	3.2	3.2
  	 	 	 

JEC HYGIENIC ROTARY LOBE AND PISTON PUMPS

Each series of the JEC rotary lobe and circumferential piston pumps is, in its field, a state-of-the-art. The pumps can be fitted with a variety of features and rotors to adapt to almost all hygienic pumping tasks. The pumps can be customized to function for an optimum function or performance to your process.



	JRZL	JRZP	JTP	JRZW
Concept	Rotary lobe	Circumferential piston	Truck pump	Wine pump
Max. flow [m ³ /h]	200	42.5	49	51
Max. differential pressure [bar]	20	15	15	8
Internal surface roughness [µm]	standard 0.6 (option 0.4)	standard 0.6 (option 0.4)	0.6	0.6
Certification				

- ✓ SS316L wetted parts
- ✓ SS gearbox possible
- ✓ Unique own design front loading sealing type
- ✓ Helical timing gears
- ✓ Universal mounting
- ✓ Various rotor options

Rotor options



• *Bi-wing (lobe)*



• *Tri-lobe*



• *Heli-lobe*



• *Multi-lobe*







• *Bi-wing (piston)*



JEC HYGIENIC TWIN-SCREW PUMPS

All advantages of rotary lobe pumps and centrifugal pumps are combined in the JEC twin-screw series. This two-in-one operation pump series is excellent for pumping not only high-viscous liquids and pastes but also the thin-liquid cleaning fluids that are used for CIP cleaning. The pumps provide a pulsation free flow for gentle operation.



	JRZS	
Concept	Twin-screw	
Max. flow [m ³ /h]	100	
Max. differential pressure [bar]	12	
Internal surface roughness [μm]	standard 0.6	
Certification	   	














- ✓ SS316L wetted parts
- ✓ One piece case with large radius corner
- ✓ Integral geared adaptor with B5, 4 pole motor directly coupled
- ✓ Compact & diverse sealing system
- ✓ High power efficiency
- ✓ SS gearbox standard
- ✓ 3A & EHEDG



VERDERAIR HI-CLEAN AIR OPERATED DIAPHRAGM PUMPS

The Verderair HI-CLEAN pumps are designed for operation in hygienic, dairy, cosmetic and food processing applications, such as fruit syrups and concentrates, sauces and cosmetic creams. The series consists of hygienic and food grade air operated double diaphragm (AODD) and piston pumps. When compressed air is not applicable, a unique electric driven series is available, with all benefits of the normal AODD series, including automatic stalling against closed discharge line! In addition it has a low pulse mode.



	VA-H_FD	VA-H_SP	VA-H_3A	VA-H_SB
Concept	Basic hygienic	Piston pump	Cleanest food	Food & solids handling
Max. flow [l/min]	603	9.5	603	603
Discharge pressure [bar]	8.4	8.4	8.4	8.4
Internal surface roughness [μm]	3.2	3.2	0.8	0.8
Certification	  	  	   	  

- ✓ SS316L
- ✓ EN 1935/2004
- ✓ FDA approval
- ✓ Tri-Clamp or DIN 11851 Connections



VA_EH

Electrically driven

540

17

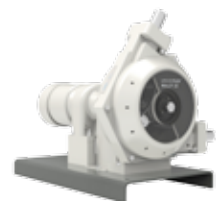
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VERDERFLEX HYGIENIC PERISTALTIC PUMPS

Verderflex peristaltic pumps are manufactured in ISO 9001, ISO 14001 and ISO 18001 accredited facilities in Germany and the UK. Verderflex pumps are used for precise, gentle, aseptic transfer of shear sensitive cultures, nutrient dosing, inter-reactor transfer using USP VI rated tubing.

For the food industry, FDA & EC/1935 hoses and tubes solve difficult tasks including pumping fragile fruit segments with minimal heat generation, metering flavours and feeding vacuum filtration systems with zero pulsation. The Vantage 5000 combines precision dosing with advanced compliance assistance including time stamped record keeping, security from USB backed up settings and records and reassurance of real time feedback and control to master controllers and PLCs.



	Vantage 5000	Rapide	Rollit
Concept	Advanced dosing system	Compact transfer	High flow
Max. flow	6.600 ml/min	17 l/min	6.9 m ³ /h
Max. discharge pressure [bar]	7	2	2
Functions	<ul style="list-style-type: none"> Record keeping Digital communication Analog feedback and control 		
Food or pharma graded tubing and hoses	<ul style="list-style-type: none"> Platinum cured Silicone Verderprene 	<ul style="list-style-type: none"> Platinum cured Silicone Verderprene 	Verderprene
Certifications	   	   	  

- ✓ EN 1935/2004
- ✓ FDA approval
- ✓ Lubricant free
- ✓ Tri-Clamp or DIN 11851 Connections





*Any questions? Visit our website
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